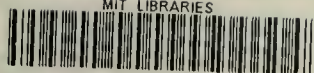


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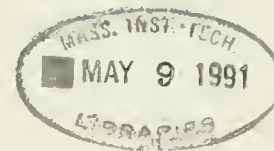
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NEGOTIATOR COGNITION



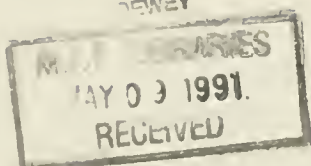
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NEGOTIATOR COGNITION

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Abstract

This paper argues that the study of the cognitions of negotiators offers an important, new direction in the study of negotiation. This paper outlines various directions that the study of negotiator cognition might follow. We examine the existing literature on behavioral decision theory effects in the negotiation domain, propose that additional biases occur in the negotiation context because of a tendency to ignore the cognitions of others, and outline the unexplored potential of the social cognition area to further inform the negotiation literature. Together, these perspectives of negotiator cognition offer a view of the negotiation process that is in sharp contrast with the rationalistic expectations that are common in economic models of negotiation.

Negotiation is a process by which two or more interdependent parties who do not have identical preferences across decision alternatives make joint decisions (Pruitt, 1981, 1983; Kelley & Thibaut, 1980). Despite the obvious prevalence and importance of negotiation, substantial evidence exists that negotiators frequently fail to attain readily available and mutually beneficial outcomes, and that these inefficiencies in the negotiation process reduce society's available resources, productivity, and creative opportunities, and increase society's conflict and self-destructiveness (Pruitt and Rubin, 1986; Raiffa, 1982). For example, in the labor-management domain, failures of negotiation lead to costly strikes, decreased harmony in the workplace, and threats to the survival of the organization and the jobs of organizational members (Walton and McKersie, 1965; Kochan, 1980). The dangers of negotiation failures in the international sphere include inefficient economic trade, war, and threats to our survival.

Although the above definition places negotiation within the domain of decision making, there is little work in the negotiation literature that has examined negotiation from the perspective of behavioral decision theory or cognition in general. In this paper we examine the capacities and limitations of human cognition in dealing with the complex cognitive task of negotiation, a perspective that we believe offers a new direction in the negotiation literature (Bazerman and Neale, 1983).

Past research in the area of negotiation has focused on three major topics: (1) economic models of how people would make decisions in negotiation tasks if they were fully rational (Nash, 1950; Raiffa, 1982);

(2) structural determinants of negotiated outcomes such as differential information or payoffs (Kochan, 1980) or the effects of other surrounding characteristics (e.g., the form of third party intervention that will be used if the negotiators reach impasse); and (3) individual differences among negotiators, such as competitiveness (Rubin and Brown, 1975).

Unfortunately, there has been little interaction among these perspectives. The lack of interaction is attributable to the varying disciplinary backgrounds of the researchers from the three domains of inquiry and the lack of a common conceptual focus for discussion. The economic models were developed by economists, the structural determinants approach developed out of industrial relations, and the personality approach was developed in psychology.

We believe interaction among these approaches is possible within a framework that views negotiation as a decision making process. The above approaches focus on inputs to the negotiation process in the structure of the issues, the setting, and the types of negotiators, and outputs in relation to a normative outcome. Figure 1 provides a simplified schematic portrayal of the negotiation process as portrayed in economic models (panel a) and in those models specifying the negotiation task and the types of negotiators as inputs determining the negotiation outcomes (panel b). The dotted arrows in panel b refer to possible sequences of behavior by negotiators who affect each other's subsequent behaviors.

Insert Figure 1 about here

Neither of these approaches examines intervening decision processes. We believe that a conceptual focus on the intervening decision processes in negotiation will offer new insights and provide a common ground for linking the alternative approaches that currently dominate the negotiation literature. A decision making approach to negotiation views each party to the negotiation as a decision maker. The behaviors of each party are seen as choices based on judgments about the negotiation situation. Each party is thus considering information about the situation, analyzing each other's behavior, predicting future events, and assessing possible consequences. The actual consequences received by each party are then a function of everyone's behaviors and the contingencies of the negotiation context. As portrayed in panel c of Figure 1, the impacts of personality, expertise, and features of the situation are mediated by the judgments negotiators make during the negotiation process. The dotted arrows leading from one person's behavior to the other's cognitions again refer to possible sequences of interaction over time during negotiation.

Our cognitive perspective of negotiation focuses on the decisions of the negotiation actors. However, we are not simply proposing a model of decision making that applies to negotiation. Rather, we are examining cognitive patterns that are created by the negotiation context. We will examine what the individual level decision making literature has to offer. But, we will also examine judgmental deficiencies that are specific to competitive contexts. Before we begin the examination of the ways in which negotiator judgment deviates from rationality, this introduction overviews the outcome and process assumptions of a rational model of negotiation. This will provide a useful contrast to the perspective that we later develop in this paper.

Economic Models of Negotiated Outcomes

Economic models of negotiation have assumed rationality and have focused on two primary dependent outcome variables. The first is whether or not the parties reach agreement. These models predict that if there is a zone of agreement that both parties prefer over reaching impasse, then an agreement will be reached (an important exception to this statement is the work of Crawford [1979]). If no zone of agreement exists, then no agreement will be reached. However, ample empirical evidence has shown that individuals often fail to reach an agreement despite a positive zone of agreement (cf. Pruitt, 1981). A great deal of research has examined the structural and individual difference variables that affect settlement in cases in which a positive zone of agreement is defined to exist (cf. Pruitt and Rubin, 1986; Rubin and Brown, 1975). However, negotiation research has not provided a process explanation of why negotiators fail to reach agreement despite a positive zone of agreement.

The second outcome variable receiving attention in negotiation research is the degree to which the agreement reached by the parties is efficient. An agreement is said to be efficient, or pareto optimal, when there is no alternative joint resolution available that would be preferable to both parties. Economic models argue that negotiators will maximize their utility and that the resolution between two negotiators will be pareto optimal (Zuethen, 1930; Nash, 1950; Cross, 1969; Farber, 1980, 1981). This sounds great, since efficient agreements tend to maximize joint benefit (Walton & McKersie, 1965), provide resolution of conflict when both sides have high aspirations, strengthen the relationship between parties, and contribute to the welfare of the broader

community (Pruitt, 1983). Unfortunately, negotiators often reach inefficient outcomes. Part of the explanation for this disturbing fact is that negotiators face conflicting demands in seeking successful negotiations. What social psychologists call mixed-motive games are considered to pit cooperation against competition (Kelley & Thibaut, 1980). The behaviors that are optimal for gaining concessions from the opponent are likely to be suboptimal for creating joint gains, and the behaviors that are optimal for creating joint gains are likely to be suboptimal for obtaining concessions from the opponent. However, this statement of internal conflict concerning the motives of the negotiator does not explain the decisions of the negotiator that lead to inefficient outcomes.

If economic models of negotiation provided accurate descriptions of the decision processes of negotiators, there would be no need to write this paper. The cognitive processes of negotiators would be accounted for in the rationalistic descriptions of economic models. However, there are theoretical and empirical reasons to believe that actual negotiator behavior does not exhibit the rationality of economic models. First, and most generally, behavioral decision research shows that individuals deviate from rationality in systematic and predictable ways (Kahneman Slovic, & Tversky, 1982; Hogarth, 1980; Nisbett & Ross, 1980). Second, and more specifically, recent research demonstrates that negotiators deviate from the economic model of negotiator rationality in a number of systematic ways which reduce outcomes to the parties and to society in general (Neale and Bazerman, 1985; Bazerman, 1983). However, the work of Bazerman and Neale has drawn almost exclusively from the behavioral

decision theory literature, which represents only one segment of what we know about how people actually make decisions. This paper attempts to map out a broader definition of the area of negotiator cognition that has theoretical, empirical, and applied relevance.

An Outline of Decision Processes in Negotiating

The decision making or problem solving process in negotiation can be usefully separated into a set of stages (Huber, 1980; Hogarth, 1980; March and Simon, 1958), without implying that the process necessarily takes a simple linear form (Mintzberg, Raisinghani, & Theoret, 1976). It will be useful to keep this framework in mind as we discuss negotiator cognitions, and we will return to this framework at the end of the paper to integrate the themes that will be developed throughout the paper. The first stage is the recognition that there is a problem to solve (something to negotiate), and acceptance of responsibility for solving it (see Corbin, 1980, for a discussion of decision avoidance strategies). The first stage can be more actively construed as problem finding, although most problems seem to find people rather than vice-versa. The second stage is the structuring or formulation of the problem. This stage involves the classification of problem type, the exploration of the problem and recognition of possible consequences, and so forth. The third stage consists of gathering relevant information about conflict, your alternatives to negotiation, the other parties' alternatives to negotiation, your interests, the opponents' interests, etc. With this information available, you are ready for the fourth stage -- information evaluation. Which pieces of information are directly relevant to the negotiation? What are the implications of this information? Finally, the

fifth stage consists of strategy evaluation. This stage consists of using the information acquired to develop a coherent strategy for interacting with the opponent.

These stages help to structure the concept of negotiation as decision behavior, but this analysis is neutral regarding the presumed rationality of the negotiator. A rational view of negotiation would expect that negotiators follow each of these steps in an optimal fashion, for example, identifying all alternatives and all outcomes, gathering all relevant information, and combining it optimally. In contrast, the behavioral literature suggests that negotiators behave in a more selective, abbreviated, and even biased manner. Each stage in the decision process is prone to oversimplifications and errors, some of which are common to decision making and cognition in general, others of which are unique to the negotiation setting. The simplifications and cognitive errors that occur in negotiation are the central concern of this paper.

The remainder of the paper is organized in four sections. First, we examine the behavioral decision theory research of Neale and Bazerman. This is the most well-developed area in this paper, since it is the only area of the paper that is based on published empirical work on the cognitive processes of negotiators. Second, we develop the argument that the negotiation context produces additional sources of deviations from rationality that would not be observed in an individual decision context. Specifically, we argue that individuals have a systematic tendency to ignore important and easily available information about the decision processes of opponent negotiators. This section is based on a few pieces of completed research, but is presented in the form of a theoretical

integration that is only now emerging from our ongoing research. Third, we will delve into the social cognition literature to explore other conceptualizations of judgment that have the power to inform the field of negotiation. Finally, the fourth section reconsiders the steps of the decision process of negotiation (outlined above) in light of the evidence of systematic deviations from rationality in negotiation that are presented throughout the paper.

BEHAVIORAL DECISION THEORY IN NEGOTIATION

Most of the existing research dealing with the cognitions of negotiators has derived from behavioral decision theory, which is the major alternative to neoclassical economics for describing individual decision processes (Kahneman and Tversky, 1979; Kahneman et al., 1982; March & Simon, 1958; Simon, 1947). Specifically, behavioral decision research has identified a number of systematic ways in which judgment deviates from rationality. This section will overview some of the behavioral decision theory effects that have been observed in negotiations, evaluate the contribution that this area of research can make to the study of negotiation, and offer suggestions for future research.

Overconfidence

Negotiators are overconfident in evaluating their likelihood of achieving successful negotiations (Bazerman and Neale, 1982). Overconfidence has been demonstrated in a broad range of judgments (Einhorn and Hogarth, 1978, 1981; Fischhoff, 1981). In the negotiation context, overconfidence can lead to at least two related effects. First, in a simple two-party bargaining context, overconfidence could inhibit an

agreement, despite the existence of a positive bargaining zone. If both sides expect the other party to eventually yield, they will not be the first to yield. Second, overconfidence could lead parties to use third parties unnecessarily, since each party overestimates the likelihood that the third party will favor their position.

In a careful economic analysis of the use of a third party, Farber (1981) shows that overconfidence provides a sufficient theoretical explanation for why negotiators fail to reach agreements and then use arbitrators, despite the fact that the arbitrator imposes costs on both parties and does not typically increase the joint benefit obtained by the parties. Farber shows that overconfident negotiators will not settle for the middle ground that an objective third party is likely to choose. Since each party expects the third party to see the world closer to their own eyes, neither party will accept the compromise that lies between their positions, even when this point represents a good actual estimate of the eventual decision of the third party (which will not always be the case - see Bazerman, 1985; Farber & Bazerman, 1986).

Neale and Bazerman (1983) show empirically that negotiators do tend to be overconfident. After submitting decisions to arbitration, Neale and Bazerman found that negotiators estimate a 68% likelihood, on average, that the arbitrator will select their final offer. Objectively, with two parties, only 50% of the offers actually can be selected. If negotiators were more realistic, and thereby less confident in their fallible assessment of the likely behavior of the third party (or any other alternative to a negotiated settlement), they would tend to be more concessionary in order to reach negotiated settlements.

Escalation in Negotiation

A second well-researched judgmental distortion is the tendency of negotiators to nonrationally escalate their commitment to a previously selected course of action (Staw and Ross, 1987; Brockner & Rubin, 1985; Teger, 1980). At an individual level, it has been shown that individuals will tend to continue a previously chosen course of action in order to justify cognitively a past decision (Staw, 1976, 1981). Empirical research shows that individuals will stay in such disputed contexts well beyond the quitting point that would be dictated by a rational analysis of the situation (Teger, 1980; Brockner & Rubin, 1985). This logic has also been used to explain the Vietnam War (Staw, 1976), the Falklands crisis (Bazerman & Neale, 1983), and numerous other well known failures of negotiation. Both sides escalate their commitment in order to justify their current stance in the conflict and to avoid admitting past mistakes.

Bazerman (1986) offers four causes of escalation that are relevant to the negotiation situation. First, once a negotiator makes an initial commitment to a position, perception is biased toward information that is supportive of the initial position. Second, a negotiator's judgment will be biased toward justifying the earlier position. One good example of this is when we are overconfident in the viability of our position (as discussed in the previous subsection). Third, negotiators often escalate in order to "save face" with their constituency. Negotiators often go against their constituencies' best interests in order to look "strong" to that same constituency. These three explanations of escalation apply to all types of escalatory situations. However, the competitive context of negotiation situation adds a fourth cause of escalation: Negotiators are

often uncertain about the future actions of the opponent negotiator. Rather than thinking through the possibilities, negotiators leave their predictions open so they can later justify their position in retrospect. The unfortunate result can be seen in the famous "dollar auction" (Shubik, 1971; Teger, 1980), where individuals bid more than a dollar for a dollar because of the uncertainty about the opponent's future behavior (see Page 21 of this paper or Teger [1980] for details).

Salience of Information in Negotiation

A third deficiency that biases negotiator cognition is concerned with the saliency of information. Tversky and Kahneman (1973) suggest that more salient information has more impact on an individual's decision process (Nisbett and Ross, 1980), perhaps because salient events are more available in memory.

In a laboratory study of bargaining behavior, Neale (1984) found that varying the saliency of negotiation-related costs and arbitration-related costs (while holding objective costs constant) altered both the process and outcome of negotiation. When negotiation costs (i.e., perceived costs of a negotiated settlement) were made particularly salient to the negotiators, they were less concessionary and more likely to declare impasse. However, when arbitration costs (i.e., perceived costs of an arbitrated settlement) were made particularly salient to the negotiators, they were more concessionary and less likely to declare impasse. Obviously, in other negotiation settings, the salience of negotiation and arbitration-related costs can be generalized to the costs of negotiation versus the costs of "walking away" from the negotiation.

The Framing of Negotiations

Kahneman and Tversky's (1979) Prospect Theory holds that outcomes are evaluated as gains or losses from an imputed reference point (part of the "frame" of the problem), and that most individuals are risk averse for potential gains, but risk seeking for potential losses. Bazerman, Magliozzi, and Neale (1985) extended the framing effect to negotiators by arguing that negotiators framing outcomes as gains or profits would be more concessionary in order to obtain the sure (risk averse) outcome available in a negotiated settlement. In contrast, they argued that negotiators framing outcomes as losses or costs would show comparatively risk seeking behavior by holding out and risking an impasse in order to attempt to obtain a better agreement through concessions by the opponent.

Bazerman et al. (1985) examined the impact of framing on buyers and sellers in a free market simulation. They instructed positively framed negotiators to maximize net profit and negatively framed negotiators to minimize expenses to be subtracted from gross profit. They found that positively framed negotiators completed more agreements (due to their desire for certain outcomes) than their negatively framed counterparts. In addition, positively framed negotiators obtained significantly more profitability across multiple transactions in a fixed amount of time than negatively framed negotiators. These results challenge economic models of decision making which argue that the frame of the problem should not effect negotiator behavior.

The framing effect has important, yet untested, implications for negotiator and mediator tactical behavior. How negotiators phrase options matters. For example, negotiators should always make it salient to the

opponent that they are in a risky situation where a sure gain is possible. Similarly, mediators, whose goal is a mutually acceptable compromise, should strive to have both parties view the situation in a positive frame and to be aware that an impasse is a risky proposition. Empirical testing is needed to confirm the power of the framing effect as a tactical behavior by negotiators and mediators.

The Mythical Fixed-Pie of Negotiations

Integrative agreements are nonobvious solutions to conflict that reconcile the parties' interests and yield higher joint benefit than a simple compromise could create. Skill building in helping negotiators find integrative agreements is the most central concern of the rapidly proliferating field of negotiation (Kochan and Bazerman, 1986). A key element in this training is the recognition that individuals enter into negotiations assuming that they are in direct competition with the opponent negotiator. This frequently false assumption - the mythical fixed-pie of negotiations - may be the most common barrier to the creation of mutually beneficial agreements.

The existence of a mythical fixed-pie can be a result of the simplification of a complex cognitive task. In order to cope with complex problems, individuals make simplifying assumptions to make the problem cognitively manageable (Simon, 1957; Newell and Simon, 1972). In negotiation, folklore and many of our past experiences tell us that we are in competition with the other negotiator and thus directs us to attend to the distributive or competitive aspects of negotiation. Once it becomes part of our cognitive repertoire, the habitual tendency to make that assumption can be difficult to break.

The importance of the mythical fixed-pie and the benefits of overcoming it can be seen in Pruitt and Rubin's (1986) depiction of the Camp David talks:

Egypt and Israel tried to negotiate the control of the Sinai Peninsula, a situation in which it appeared that the two sides had directly opposing goals. Egypt wanted the return of the Sinai in its entirety, while Israel, which occupied the territory since the 1967 war, refused to return this land. Efforts at compromise failed.

Neither side found the proposal of splitting the Sinai acceptable. This is a classic case in which agreement could not be reached until the fixed-pie assumption was broken. Israel cared about the security that the land offered, while Egypt was primarily interested in sovereignty over the land. With the fixed-pie assumption broken, the two parties were able to agree that Israel would return the Sinai in exchange for assurances of a demilitarized zone and new Israeli air bases.

Bazerman (1983) used the mythical fixed-pie argument to analyze the housing market in 1979 and 1980. When interest rates first shot above 12% in 1979, the housing market came to a dead stop. Sellers continued to expect the value of their property to increase as it had in the past. Buyers, however, could not afford the monthly payments on the houses that they aspired to own. Viewing this as a distributive problem, the fixed-pie assumption led to the conclusion that transactions would not occur until seller resistance points decreased, buyer aspirations decreased, and/or interest rates came down. None of these changes emerged. However, once the industry began to view the problem integratively, some relief was provided. Sellers wanted a price that

showed profit. Buyers wanted to hold monthly payments down. The integrative and efficient solutions were the wide variety of creative financing plans that emerged after the mythical fixed-pie was broken.

In a more controlled laboratory setting, Bazerman et al. (1985) found that in a novel integrative bargaining task requiring both cooperation and competition, it is the competitive aspect that first becomes salient -- resulting in a win-lose orientation and a distributive approach to bargaining. Bazerman et al. (1985), among others (McAlister, Bazerman, and Fader, 1986; Neale and Bazerman, 1985) also found that experience allows negotiators to break this fixed-pie assumption and learn to integrate. Although it is reasonable to assume that experienced negotiators are skilled at finding integrative agreements in their own area of expertise, Neale and Northcraft (1986) provide evidence that experienced negotiators have limited ability to translate their expertise at finding integrative agreements from one domain to another.

Opportunities for Negotiator Bias Research

We have provided evidence that deficiencies in judgment hinder the processes and outcomes of negotiated activity. We believe that this work identifies a new direction for negotiation research that can provide an important unifying thread to the negotiation literature. A cognitive approach that provides a process level understanding of negotiation has the potential to get economists, psychologists, industrial relations experts, and organizational behaviorists all talking about the same negotiation problems. Economists need to reconsider their assumptions about rationality in negotiation, and behavioral scientists need a more rigorous approach to examine how their structural and individual difference variables affect behavior.

Research on negotiator cognitions could also unify the separate approaches of prescriptive and descriptive models. The prescriptive camp focuses on how a rational negotiator should behave when confronting an equally rational opponent (who many of us would argue does not exist). Unfortunately, the rational course of action suggested by these models was not necessarily the optimal strategy against real (nonrational) others. The descriptive camp provided more realistic findings, but lacked prescriptions for practitioners. Recently, the prescriptive camp moved to an important middle ground in Raiffa's (1982) seminal book in which he argues for an asymmetrically prescriptive/descriptive approach which prescribes the optimal course of action, given the best description of the opponent.

Our approach to negotiator cognitions complements this middle ground by arguing that descriptions of negotiator behavior should be grounded in a framework that allows for the identification of specific deficiencies from rationality, diagnoses of situations in which biases are most prevalent, and techniques for eventually providing training and other remedies. This would allow human intuition to move closer to rationality. There are many unexplored opportunities for important research in the future. We see growing evidence of a negotiation literature that provides valuable prescriptions based on reasonable descriptions of the opponents behavior and the focal negotiator's cognitions.

The previous discussion of negotiator errors or biases is an extension of the biases and errors studied in Behavioral Decision Theory (Kahneman et al., 1982; Nisbett & Ross, 1980; Pitz and Sachs, 1984). In addition,

we believe that negotiators make many of their most serious errors when they improperly model the behavior of other actors by ignoring their actions or assuming the others will continue behaving the same way despite changes in the negotiator's own behavior. The next section will extend what we know about decision biases by examining a new set of biases that are introduced when an individual is faced with competing others. Thus, while the last section examined how the behavioral decision literature could inform our understanding of negotiation, the next section examines how a consideration of competitive others allows us to identify new biases in judgment.

IGNORING THE ACTIVE DECISION PROCESSES OF COMPETITIVE OTHERS

Many researchers have argued that negotiators must consider the planned strategy of the other party (Walton and McKersie, 1965; Rubin, 1980). Siegal and Fouraker (1960) state that successful negotiation depends on considering how the opponent will assess possible outcomes. Kelley and Thibaut (1980) argue that relationships achieve mutually-satisfactory sets of outcomes by recognizing the mutual benefits of certain joint activities or joint sets of activities (trading). Despite the clear importance of analyzing the cognitive strategy of an opponent negotiator, virtually no research has examined the ability of negotiators to follow this prescription. While the importance of understanding the cognitions of the opponent negotiator is well specified by negotiation theorists, we argue that a fundamental (and correctable) impediment in negotiation processes is the failure of negotiators to cognitively consider the intended decisions of the opponent negotiator. In this section, we will present the basic argument for believing that

negotiators fail to consider adequately the cognitions of opponent negotiators and carefully examine recent empirical research that uses protocol analyses to directly test this argument.

The Basic Argument

Samuelson and Bazerman (1985) show that negotiators under an information disadvantage deviate from normative behavior by (passively) ignoring the information available to the opponent and, consequently, fall prey to the "winner's curse" -- they consistently (and voluntarily) enter into loss-making purchases. In one of their studies, subjects are given an opportunity to make one bid (take it or leave it) for the acquisition of a company. As potential acquirers, subjects know only that the company is equally likely to be worth any value between \$0 and \$100 and that, whatever its value, it is worth 50% more to the acquirer than to the target owner. The target owner knows the exact value and will accept any bid at or above that value. What should the acquirer bid? (the problem as presented to the subjects is presented in Appendix 1)

Insert Table 1 about here

The pattern of responses is provided in Table 1. The most common response was in the \$50-\$75 range. Samuelson and Bazerman suggest (but do not provide direct evidence) that subjects arrive at this response by the following logic:

The value of the firm is uncertain, but its expected value to me is \$75/share. In addition, the expected value of the firm to the target is \$50/share. Thus, I can make a reasonable expected profit by offering some price slightly in excess of \$50/share.

This logic would be rational if the target was also uninformed about the value of the firm and only had the distributional information available to the acquirer. However, the fact that the target has significantly more information than the acquirer has important implications: An informed target will only accept offers if they are profitable, which leads to an expected loss (the "winner's curse") for any offer above \$0. This is illustrated by the following normative logic for the acquirer considering an offer of \$60/share:

Suppose that I make an offer of \$60/share. If it is accepted, the firm must be worth between 0 and \$60/share. Since all values are equally likely, the average value of the firm to the target when my offer is accepted is \$30/share. Since the firm is worth 50% more to me than to the target, the expected value of the firm to me is then \$45/share. My profit has the expected value of \$45-\$60, or -\$15/share.

It is not hard to generalize the reasoning for this problem into the conclusion that, when an offer is accepted, the acquirer can expect to obtain a company worth 25% less than the price it pays. Thus, the acquirer's best offer is \$0/share, or no offer. This problem is paradoxical in that while the company is worth more to the acquirer in all cases, it is never rational for the acquirer to make an offer.

Samuelson and Bazerman's data show similar results even when subjects were paid for good performance and when a subject population with unusually high analytical capability (M.I.T. Sloan School of Management Master's Students) was used. They conclude that individuals cope with the complex cognitive task involved in competitive decisions by making

simplifying assumptions about the behavior of the other party, resulting in the (unintentional) exclusion of the contingency that the opponent has access to key information and thus selectively accepts offers.

At one level, these findings can be taken as evidence of a systematic bias unique to competitive situations under asymmetric information. We propose the stronger argument, however, that individuals in competitive situations make simplifying assumptions that deviate from normative logic about the decision patterns of opponents in order to make the task cognitively more manageable. This systematic pattern is indirectly reflected in several other studies.

Supporting Evidence

Neale and Bazerman (1983) found that negotiators with greater perspective taking ability would be more likely to consider the perspective of the opponent in negotiation, and thereby achieve greater success. A simple questionnaire measure of the general tendency to consider the opponent's viewpoint and values (Davis' perspective taking scale, 1980) was highly predictive of concession rate and negotiator success in an integrative, five-issue labor-management simulated negotiation.

Perrow's (1984) description of marine accidents also reflects our view of the decision processes of competitors. Figure 2 provides one example of a ship accident presented by Perrow. Perrow explains this accident in terms of the inability of complex systems to take into consideration all of the possible combinations of things that can go wrong. We propose an alternative (and complementary) explanation based on our argument that individuals tend to ignore the cognitions of competitive others. Each

captain appears passively to make the simplifying and false assumption that the other ship will continue its current direction and head straight. However, when both parties think in the same active, but naive mode -- crunch! Both parties failed to consider that the other party might decide to make further adjustments

 Insert Figure 2 about here

Finally, consider the dollar auction (Shubik, 1971; Teger, 1980) which we briefly mentioned in an earlier section of this paper: A dollar is auctioned to the highest bidder, who pays the bid and receives the dollar, but the second highest bidder also pays his or her bid and receives nothing. The common result is an escalating pattern in which individuals bid far in excess of a dollar, which has been explained by arguing that individuals nonrationally escalate their commitment to justify their earlier bids -- and to save the loss from quitting and coming in second (Rubin, 1980). We agree with this explanation of the tendency of individuals to stay in the auction. However, we now argue that it is at least as important to explain why individuals voluntarily enter into an auction that favors the auctioneer at the expense of the bidders. Our explanation is that individuals see the potential for profit early in the auction, and fail to consider what the auction will look like to other bidders. If the bidder considered that the auction will look desirable to many bidders, it is easy to see the benefits of staying out of the auction.

Measuring Cognitive Processes

The evidence presented above in support of the argument that individuals ignore the cognitions of competitive others has relied on inferences of decision process based on decision outcomes. No explicit attempts were made to measure the hypothesized cognitive patterns. The failure of subjects to achieve optimal performance was labelled "inefficient" or biased and attributed to the use of a suboptimal strategy. Thus, the existence of inferior strategies has always been inferred rather than observed. Recently, Carroll, Bazerman, and Maury (1986) have attempted to verify the inferred cognitive deficiencies in a problem conceptually identical to Samuelson and Bazerman's "Acquiring a Company" problem.

Carroll et al. asked subjects to respond to the task of deciding what to offer (as a potential buyer) for a used car that has a value known only to the seller of between \$0 and \$1000 (buyer only knows that all values are equally likely) and is worth 50% more to the buyer. The instructions to the subjects clarified that they were to make a "take-it-or-leave-it" offer. If accepted, the price would be used to calculate the buyer's profit (loss). If not accepted, no transaction would take place. Notice that this problem has all of the same properties as the "Acquiring a Company" problem (the "used car" problem is presented in Appendix 2).

Table 2 classifies the 75 subjects based on their offers into four categories: \$0, the right answer (8 responses); \$500-750, the answer produced by the naive logic that the car is worth about \$500 on average (39 responses); \$1-499, a conservative but incorrect offer (12 responses); and offers over \$750, a liberal and incorrect offer (16 responses). This

distribution is very similar to the distribution obtained by Samuelson and Bazerman in the "Acquiring a Company" problem. The distribution obtained confirms a number of observations. First, normative logic continues to be counterintuitive in the context of an additional problem. Second, the naive reasoning again appears to be the most common. And third, a significant number of subjects respond with offers that neither follow the naive nor normative reasoning.

 Insert Table 2 about here

The major purpose of this study was to assess the cognitive processes by which subjects solved the problem and thereby provide more direct evidence for the hypothesized failure of normative logic. In short, is the reasoning used in the Samuelson and Bazerman study correct in explaining the deviant cognitions of subjects who respond between \$500 and \$750? What characterizes the cognitions of subjects who offer \$0? And, what explains the offers that follow neither the naive nor normative logic?

Specifically, this study employed verbal protocols as a "process tracing technique" (Newell & Simon, 1972; Payne, Braunstein, & Carroll, 1978) to examine the cognitions underlying the pattern of results previously demonstrated in Samuelson and Bazerman (1985). Verbal protocols were collected by instructing subjects to:

Speak all of your thoughts out loud and we will tape record them.

Everything that goes through your head is equally important, even if you said it once before. Say everything, even if you are just rereading a sentence.

If subjects had difficulty speaking their thoughts or simply forget to do so, the experimenter prompted them with neutral phrases such as "Tell me what you are thinking" or "Say anything that comes into your mind."

Unlike introspections, the verbal protocol procedure does not ask subjects to speculate on what they are doing but merely to verbalize as much of the content of their thoughts as possible. This is used as a partial record of thought processes. Although verbal protocols have been criticized as inaccurate and disruptive of ongoing processes (Nisbett & Wilson, 1977), the consensus among psychologists has been strongly supportive for protocols collected concurrently with task performance (Ericsson & Simon, 1980; Smith & Miller, 1978). Verbal protocols are particularly useful when coupled with other types of measures and a strong design (Einhorn, Kleinmuntz & Kleinmuntz, 1980; Payne et al, 1978). Verbal protocols have proven useful in both laboratory settings (e.g., Ericsson & Simon, 1980; Payne, et al., 1978), and in such real world settings as stock portfolio selection (Clarkson, 1962), consumer purchasing (Payne & Ragsdale, 1978), and medical diagnosis (Johnson, Hassebrook, Duran, & Moller, 1982).

The verbal protocols were coded by breaking them up into phrases each representing a single thought or idea, and then coding these phrases into one of 16 categories. 5 of these categories represented thoughts that were characteristic of our expected decision processes for naive subjects (e.g., the subject assumed a fixed value for the car), 6 categories represented thoughts that were characteristic of our expected normative decision processes (e.g., the subject explained the contingent behavior of the seller in a generalized manner), and 5 categories represented thoughts

that were neutral in reference to the naive vs. normative distinction (e.g., the subject repeated that the car was worth 1.5 times as much to the buyer as to the seller).

Subjects who made incorrect offers differed dramatically from those who made the correct offer of \$0. Table 2 gives the three protocol codes that most strongly differentiated between the \$0 offer category and the other three categories, and were significant in a multiple discriminant analysis using the 16 codes to predict offer category. For each category of subject, Table 2 lists the percentage of those subjects who verbalized a thought in each of the three listed codes. For example, 87.5% (7 out of 8) of the subjects who offered \$0 developed a generalized argument that articulated the likely contingent behavior of the seller. Only 7 of the remaining 67 incorrect subjects (10.4%) exhibited this protocol. An example of a generalized hypothetical is illustrated in the following quote from one of the subjects who offered \$0:

3/2 the actual value minus my offer is my gain, now I want to maximize that. Somehow I need to relate my offer to the actual value of the car, I don't know the value, so I have to come up with an offer. Let's say I offer 500, then my gain is 250 if the car is 500 at maximum. If it is worth 0, at worst, my gain is -500. So my expected benefit is linear between those two, halfway between -500 and 250...This looks like I lose all the time. If I offer 1000, I can make 500 or lose 1000, in which case I lose bigger. The more I offer, the more I lose. So from that I think I will offer him \$0 for his car.

Large differences occurred in the other two protocol categories listed in Table 2. Correct subjects tended to make statements which emphasized that they did not have to buy the car, realizing that they only wanted the car at a profit. This was not true for non-optimal bidding subjects. Subjects in the non-optimal categories often made statements reflective of false objectives for the task (e.g., "I want to make sure that I get the car"), while correct subjects did not verbalize such false objectives.

Table 2 also lists the results for four protocol categories that strongly discriminate among the three types of incorrect answers. The middle-range offers emerge from subjects who assume a value for the car or guess a median range value. For example, one subject reasoned in the following way:

I'd say it's equally possible that its worth between 0 and 1000, so in the average case, it's worth 500 to the dealer which means on the average is worth 750 to me. So I have to offer him, on the average, at least 500 for him to sell it and on the average, any offer under 750 is worthwhile to me. And, I'd say its worth 50% more to me...out of that 250, I'd go 150/100 split so I'd say 650.

Although the midrange value was a common assumption or best guess, we also observed that assuming a fixed value for the car explained many of the subjects who offered between \$1-499 or \$751-1000. The following example shows such a result:

The car is very old, so I don't think it would be worth more than 2 or 300 so I would probably offer him \$150...it says here I could use the car, so I'd offer him 200.

While this subject is not following the valuation basis provided in the instructions, his assumption of a value was moderately common on both the high and low ends. In addition, high offers were associated with offering the buyer's value for the car instead of one closer to the seller's value, and low offers were associated with realizing that the buyer can lose money.

Carroll et al.'s results lend general support to the hypothesized process explanation provided by Samuelson and Bazerman, and provide direct evidence of the cognitive patterns of the subjects. They show that correct subjects do go through some approximation of the normative logic that has been suggested. That is, they develop a reasoning pattern that articulates the impact of the contingent behavior of the opponent. Interestingly, Carroll et al. show that non-optimal subjects typically simplify their task by assuming some value for the car (and presumably the company in the Samuelson and Bazerman task). This provides a cognitive explanation for subjects who could not be categorized as either naive nor normative subjects in the Samuelson and Bazerman study. It seems that subjects simply bring into the experiment some past knowledge to make an assumption of value other than the midpoint. The integrating theme, however, is that once subjects assume a best estimate (based on information internal or external to the task), it simplifies the task for them, they use that assumed value, and never develop the appropriate normative logic.

This section has argued that individuals commonly ignore the cognitions of a competitive other, and provided a cognitive explanation for this tendency. Although we have illustrated this tendency in a fairly simplistic environment, we would expect this tendency to generalize to

complex negotiations. In our tasks, the subjects had the potential to cognitively deal with the information requirements. In fact, when presented with the normative logic after completing the task, subjects often were disgusted by their offers -- "it was so obvious." In complex negotiations, the cognitive demands are far more severe (more options exist, more factors need to be considered, more pressure exists, etc.), leading to greater use of cognitive simplifications, and the greater likelihood of assuming some knowledge such as the value of the commodity for sale.

Nevertheless, future research must demonstrate the tendency to ignore the cognitions of competitive others in more complex and realistic settings. In addition, we need research designed to train subjects to eliminate these biases. Recently, a colleague in the economics department presented the "Acquiring a Company" problem to his analytically-trained second-year master's students who had been taught how to include relevant information about the opponent in their decision processes, and less than one-third got the correct answer. Clearly, something more than prescriptive training is needed.

The first two sections of the paper have explored cognitive deficiencies for which we have evidence in the negotiation context. However, the social cognition literature has developed many additional insights that may be relevant to negotiation. The next section becomes more exploratory and considers some relevant areas for inquiry that have yet to be touched by empirical negotiation research. In the subsequent and final section of the paper, we provide a framework to incorporate and integrate the ideas we have presented.

SOCIAL COGNITION AND NEGOTIATION

The previous sections of the paper have dealt with the identification of specific biases that affect specific judgments required in a negotiation task. However, the ideas in these sections did not provide a comprehensive approach for describing the complete cognitive process required by the negotiation task, and no such model exists in the negotiation literature. The lack of a comprehensive description of decision making in a realistically complete decision task is also a limitation of the behavioral decision theory literature (Pennington and Hastie, 1985). We believe that the social-cognitive psychology literature could provide the basis for developing a more complete model of the cognitive processes involved in negotiation.

The area of social cognition examines the complex cognitive strategies that individuals use to make sense of their social world. Social cognition integrates work in cognitive psychology on memory, attention, and problem solving that has used structured and nonsocial problems such as chess and cryptarithmic, with the concerns of social psychologists regarding less-structured social problems such as marital choice and parole evaluations (Carroll & Payne, 1976; Fiske & Taylor, 1984; Nisbett & Ross, 1980). Since the task of negotiation is by definition social, the area of social cognition is an obvious place to look to gain additional insights concerning negotiator cognition.

The guiding principles of social cognition research concern information processing capabilities and limitations, heuristics and strategies, and errors and biases. In this sense it is very compatible with the behavior decision theory literature. These limitations of

attention, memory, speed and effort produce a natural reliance on shortcut methods that generally produce satisfactory, but not necessarily optimal, results. The research in social cognition essentially portrays people as attempting to respond to situations by referring to similar past experiences. We use our knowledge base to make some educated guesses, asking ourselves "What kind of situation is this?" and "What kind of people are these?" instead of analyzing the elements de novo from first principles. This knowledge is represented in cognitive structures that organize the information that we have acquired in the past. These cognitive structures have been referred to as schemata (Fiske and Taylor, 1984) and knowledge structures (Pennington and Hastie, 1985). Thus, we tend to appreciate the power of analogy, such as when Afghanistan is called a "Viet Nam" for the Soviets. It seems much easier to reason comparatively from representative cases based on our existing knowledge structures than to reason absolutely.

In this context, we describe negotiator cognition in terms of existing knowledge structures working in conjunction with the negotiator's efforts to make decisions in rational ways, biased by the effects documented in earlier sections of the paper. We portray negotiator cognition as an act of imagination by which the negotiator cognitively constructs a reality about the negotiation situation. The negotiator uses past knowledge to understand the current situation and to make predictions about what will happen in the future. The negotiator constructs a mental model of the situation, including explanations of the behaviors of individuals in the situation. Within this model, the negotiator acts like the director of a play, imagining various scenarios and instructing the actors to play their

roles in character. These mental simulations are played out in the imagination and outcomes are recorded. This produces a distribution of outcomes of various subjective likelihood based on their availability (Einhorn & Hogarth, 1985). The reflective aspects of this process are not unlike a chess game in which the moves and responses are first imagined, and then enacted against the real opponents. The central question then becomes, how do negotiators create these mental models and manipulate them? Where do they get the bits of information used to build the models and "run" them?

The social cognition literature offers a variety of knowledge structures concerned with organizing different types of concepts. Many different terms have been used to describe knowledge structures and their theoretical representations. We use terms informally and sometimes interchangeably to alert the reader to relevant aspects of the literature, without commitment to a single approach. Our examination of negotiator cognition gives specific attention to the way behavior is guided by our "implicit theories" of (1) situations, (2) people, and (3) causality, and (4) the confirmatory way in which implicit theories are applied.

In previous sections of the paper, we illustrated the conceptual arguments through the existing empirical research in negotiation. However, there is no empirical evidence concerning knowledge structures in the negotiation context. As an alternative form of illustration, we focus the discussion with an example to which we refer throughout the remainder of the section. Consider the following:

As Dean of major management school, you are faced with a common, yet troubling, situation. You have heard informally that one of your

promising untenured associate professors has received a very attractive offer from another school. You had assumed that she was fairly compensated. However, her competitive offer is rumored to be at a prestigious competitor, with tenure, a forty percent pay increase, and a number of other attractive features. You would like to keep this individual, but not at any cost. How do you proceed?

The social cognition area raises a number of questions that help organize our understanding of the cognitions of the Dean and the Professor in this situation. What situations are activated in the Dean's mind to interpret the current situation? What person schemas are activated in the Dean's mind about the characteristics of this faculty member? How does the Dean explain why this situation was created? And, how will the Dean collect information to develop a response? Parallel questions exist concerning the cognitive processes of the Professor. These questions raise important issues concerning both parties' decision processes, and outline the subsections that follow.

Implicit Theories of Situations

Abelson (1976) coined the term "script" to refer to a temporally connected set of events with certain specified features, variables and default values. For example, the negotiations involved in Car Buying can be described by a sequence of events: Entering the showroom, Meeting a salesperson, Viewing cars, Focusing on one car, Test driving, Assessing any trade-in allowance, Hagglng over price, Settling on a price, and Signing contracts. This script is not a rigid set of events but is bounded and structured. There are subscripts or "tracks" such as whether a trade-in is possible. If the buyer provides a low offer, the

salesperson may enter a track where the offer is taken to the sales manager, whereupon the salesperson comes back and says that he could not convince the sales manager to accept such a low amount, followed by more Haggling. The script concept provides an incisive way to discuss the information people know about norms and roles (Buyer, Seller, Sales Manager) and how this information is formed and used (Schank & Abelson, 1977).

The use of scripts or "event schemas" (Hastie, 1981) creates an easily understandable social world for both parties in a negotiation. Experienced car buyers can understand a car dealership quite readily, despite variation in the make of car, the number of salespeople present, the title of the sales manager, etc. These surface variations are incidental or are tracks (e.g., Toyota dealerships) within the more general script.

The fact that some dealerships do not fit within the typical script matches our experiences: it can be very disconcerting, humorous, embarrassing, and difficult to cope with events that are not easily coded. How does the salesperson respond when the buyer "violates" the script by refusing to tell the salesperson a price at which he/she is willing to buy the car? Sometimes, a track is activated and the sales manager comes out to discuss the car directly with the buyer. At other times, a "script" violation can cause negotiations to reach an impasse. For example, when a buyer who has only bought American cars enters a Toyota dealership to negotiate price on a bottom-of-the-line Tercel, the refusal of the salesperson to consider a lower price can cause an awkwardness that leads to an impasse - even when the buyer cannot do better elsewhere.

Abelson makes the interesting suggestion that social behavior depends on the selection of a particular script to represent the situation and the taking of a participant role within the script. The encoding of a situation as one script rather than another has substantial influence on what aspects of the situation are seen as important, which are recalled, what behaviors and events are expected, and what alternative actions are easily available or imaginable. For example, in recalling the details of a specific dealership, taking a mental tour with the goal in mind of buying a car makes it easy to remember certain features of cars. Retaking the tour with the goal of becoming a car salesperson changes what is recalled. Changing scripts can allow a decision maker (negotiator) to recall details not easily recalled under an alternative script (Anderson & Pichert, 1978).

If we presume an essential similarity of social and nonsocial scripts, there are some interesting lessons regarding expertise or variations in knowledge structures with experience (e.g., Chase & Simon, 1973, on chess experts). Johnson (1980) argues that expert decision makers (across domains) have far greater ability to match existing schemata to particular situations than novices. Experts in social situations, such as experienced negotiators, probably develop an extensive set of scripts for their respective situations. Any seasoned negotiator can tell you some version(s) of the Bathroom Script, in which a difficult bargaining session is resolved during a "spontaneous" discussion in the bathroom. Neale and Northcraft (1986) argue that expert negotiators have a greater ability to recognize the opportunity to develop joint gains (to find integrative agreements) than non-experts. An untested explanation for this result is

that expert negotiators have useful scripts (or tracks within scripts) available that are activated when the opportunity for joint gain may be present.

Rather than analyzing his problem with the recruited Professor as a unique and new problem, the Dean may activate a readily available script. For example, the "Bidding War" script suggests that this competing offer is only the first bid by the competitor, that the process necessary to keep this faculty member will be complex, and that keeping this faculty member may destroy the internal pay structure that the Dean has worked so hard to create. In contrast, the "Losing All of Our Good Junior Faculty" script suggests that losing this faculty member may lead to losing others, that rumors will begin to spread about faculty jumping ship, and a lower reputation for the school. Obviously, most good Deans would think of both of these scripts (and others). However, the salience of each of these may be a critical determinant of the Dean's response. Thus, as the Professor and other interested parties discuss the situation with the Dean, they can affect his decision processes not only by their arguments directly, but also by the scripts that they activate in his mind.

The scripts involved in a negotiation come from at least two actors. The Professor's behavior will be governed by the scripts that are activated in her mind. Since the Dean is confronted with similar situations more often than the Professor, he is likely to have more scripts available in memory. In addition, the Dean's experience is likely to have increased the sophistication of his scripts. Nevertheless, the Professor is still likely to have scripts available in memory, but they may be less developed and they may be based on vicarious learning

(learning through the experiences of colleagues who have received outside offers) (Gioia & Manz, 1985). Does she have a "Competing Offer" script or a "They Will Think I am Holding Them Hostage" script in her mind? The difference in scripts are likely to affect how she approaches the Dean and how she more generally formulates the choice to stay or leave.

It is easy to see that expert negotiators attempt to elicit selected scripts in the mind of the opponent negotiator. For example, a car salesperson will frequently point activate a script by suggesting, "by the time you finish your comparison shopping, the car you want will probably be gone." Similarly, our Dean may try to activate certain scripts through such statements as "we fully expect to have a behavioral lab by late next year." While these examples deal with activation by negotiators, it is easy to generalize the logic to see how mediators could effectively use a knowledge of script processing to increase the likelihood of two parties reaching agreement. Activating different scripts should lead to different behaviors and negotiated outcomes. The connection of scripts to negotiation is waiting for further conceptual development and empirical research.

Implicit Theories of People

The competent social animal not only has available a repertoire of schemata or social scripts representing situations, but also a catalog of actors or personality types. The terms person schema or prototype refer to our organized knowledge of other people. These include the same sort of knowledge long referred to as stereotypes, but extend from the earlier use in describing ethnic or gender groupings to describing any recognizable "type" or social category. These categories are called

prototypes when they are arranged around an exemplar, i.e., a real or imaginary person who typifies the category (Rosch, 1978). Person schemas refer more generally to a list of attributes or "central tendencies" (Hastie, 1981) associated with the category, such as an extrovert, librarian, or elderly person, of which some features are not specified (Fiske & Taylor, 1984).

The concept of person schema is very similar to classification typologies used by researchers and practitioners. Cantor, Smith, French, & Mezzich (1980) argue that expert decision makers categorize people into "fuzzy categories" by comparing the similarity of individuals to the prototypical individual of each category. Individuals that fit closely are assessed rapidly and confidently; individuals that do not fit as well take longer and produce uncertainty. Consistent with this argument, Lurigio and Carroll (1985) found that experienced probation officers organized their knowledge of probationers into person schemas such as the Burglar and the Gang Member. Cases that fit a schema were processed more consistently, faster, and more confidently than those that did not fit, and this effect did not occur for clerical staff who lacked these schemas. Comparisons of experienced and less experienced probation officers, and clerical staff showed that person schemas develop through experience. New schemas are added and enriched with experience, and some commonsensical schemas are dropped as they fail to be useful.

Person schemas contain a lot of information about traits, preferences, and goals that enable the perceiver to understand exhibited behavior, predict future behavior and develop appropriate responses. Schemas allow for a rapid understanding of even incomplete or "fuzzy" information. This

"filling in" of incomplete information is important. For example, someone who fits the Burglar schema but does not have the expected long record may be seen as a Burglar who has rarely been caught.

Just as the Dean did not evaluate the situation as a unique and new problem, so he may not identify the faculty member as a unique individual. Rather, the "Star" prototype suggests that the faculty member is superb, greatly in demand, and a highly-visible source of prestige for the university. However, the "Stars" are constantly in demand, and can be demanding, costly, and unpredictable. In the mind of the Dean, the Star may often take a role in the Bidding War script, or the "Manipulation" script in which the faculty member does not have a sincere desire to leave, but has cultivated this offer or even just the rumor of an offer, in order to coerce raises and promotion from her university. It is obvious that the Dean's response will be affected by which person schema is activated. More generally, we argue that the manner in which a Dean differentially treats (negotiates with) different professors in the absence of external offers can be partially explained by the match between a specific professor and alternative person schemas in the Dean's memory.

Again, the Professor's person schemas concerning deans are likely to be far less developed than the Dean's person schemas concerning professors. However, she is still likely to have some alternative prototypes available. Does the Dean activate a "Tough but Fair," a "Responder to Competition," or a "Demander of Loyalty" schema? These person schemas may be generalizations from previous academic positions (if she held many previous academic positions), other work experiences, the discussions of colleagues, or some more abstract construction of

managerial types. Regardless of the source, the person schema activated is likely to have an important effect on the Professor's behaviors and choice.

An expert negotiator is often described as an individual who can readily assess the opponent negotiator and predict the way different "types" of opponents will respond under varying circumstances. This argument is part of negotiation folklore, but lacks empirical support. The concept of person schema provides a mechanism to operationalize this ability that expert negotiators are thought to possess.

Future research should examine to what extent and under what circumstances the number and sophistication of person schemas predicts the success of a negotiator. Factors such as limited time, the uniqueness of the situation, and variety of person types possible would be good candidates as determinants of when person schema sophistication will be most important. Could person schemas incapacitate an expert negotiator when an opponent negotiator is falsely matched to a person schema, resulting in poor negotiation strategies? Finally we raise the issue of whether or not third parties can use the knowledge of the parties' implicit theories to identify an appropriate strategy for moving toward resolution, particularly when one (or both) negotiator's false stereotypes are at the core of the conflict. These questions are clearly related to our earlier discussion on the ability of negotiators to include an understanding of an opponent negotiator in their cognitive strategies.

Implicit Theories of Causality

Our understanding of the events around us is based on our natural tendency to see the world in causal terms. Magic, religion, and science

are human enterprises that provide explanations for important events (Malinowski, 1948). We tend to believe that events have causes, and to seek a sufficient explanation for these events. People as practical philosophers need to feel that events are understandable and predictable (Heider, 1958; Langer, 1987), and that they have enough understanding to make an appropriate response (Jones & Thibaut, 1958).

Attribution theorists argue that our attributions of the causes of events that surround us affect our evaluations of the actors involved, predictions for future events, and choices of our own behavior. Although the motivation for having implicit theories of causality sounds logical, and highly rational descriptions of attribution processes have been offered (Jones & Davis, 1965; Kelley, 1967), attribution theory is a description, not a prescription, of cognition (Ross, 1977). People tend to make characteristic errors when they attribute causality, such as the "fundamental attribution error" of assuming that other people's actions reflect their inner dispositions, giving too little attention to the power of situations to call forth behavior. Thus, observers of speakers who were assigned to give a speech either favoring or opposing an issue judged the speakers to have attitudes consistent with their speeches even though the observers knew the speakers had been assigned to their positions (Jones, 1979). Observers of students assigned to either make up questions or respond to the questions judged the questioners to be more generally knowledgeable than the respondents (the respondents themselves most strongly perceived the questioners' superiority) (Ross, Amabile, & Steinmetz, 1977).

As noted in an earlier section of the paper, Siegal and Fouraker (1960) identified the importance of understanding the opponent in developing an effective negotiation strategy. Attribution theory would suggest, for example, that the Dean can focus on questions such as: "Why did the other university make this offer" and "Why has the faculty member let this be known in this manner"? The Dean is likely to generate some hypotheses about these events, and to check them against evidence such as the manner in which the event occurred, the past histories of the key actors, and the comparison to other similar actors (Kelley, 1973; Carroll et al, 1982). This information is predicted to affect his attributions of the causes of the current situation, which in turn affects his feelings about the Professor, his predictions about future events, and his response to the current situation.

The extremity of the offer suggests the degree to which the other university is serious about hiring the Professor. The past behavior of the university is clearly relevant: do they grab other faculty, do they make big offers, what sort of resources and salary structure do they have, what has been the relations between the two universities? In short, what kind of competitor are they? Consensus information is important, i.e., what seems to be the "market price" of this person or type of person? Naturally, such comparisons depend on who is categorized as an appropriate comparison: if the Dean only considers this faculty member average, the market price is very different than if the person is unique and therefore has a very high or indeterminate price.

Causes are also inferred from the Professor's behavior. The manner in which she conveys the offer, her past history of salary negotiations, and

her past responses to offers (including the one that brought her to this job), allow an inference of her motives in this situation. The interesting part of attribution theory is that any behavior on the part of the Professor can be attributed different meaning under different circumstances. Thus, the simple presentation of the offer with an air of openness can be seen as "soft," as an attempt to generate negotiations, as a "ploy," as an expression of uncertainty, and so forth depending on the Dean's assessment of the situation. It makes a great deal of difference if this is the third time this faculty member has generated an offer, or if this is the third time the other university has tried to poach our faculty, or if the Dean has just been "held hostage" by a different faculty member.

Accurate understanding of the causes of the opponent's behavior is central to identifying appropriate responses in the negotiation arena. However, negotiators may fall victim to systematic biases in assessing the causes of events. For example, the fundamental attribution error can be generalized to posit that negotiators will hold opponent negotiators responsible for their actions more than is appropriate from a more rational assessment of the situation. That is, they will not realize the full extent to which the opponent's behavior is situationally determined. One false attribution can cause the unraveling of what would otherwise have been a successful negotiation for both sides. Effective negotiators are likely to be those than can most accurately assess the true causes of their opponent's behavior and also manage the attributions that the other party will make of their own behavior.

The Dean example provides a vivid illustration of the importance of attribution theory to negotiation. The cognitions by which negotiators explain the causality of their opponent's actions should be central to our understanding the process of negotiation. Unfortunately, we have no empirical evidence in the negotiation context to support the arguments made about our implicit theories of causality.

The False Confirmation of our Implicit Theories

The implicit theories we have reviewed share the concept of a knowledge-driven, top-down process. Our understanding of the world around us, carried in event schemas, person schemas, causal theories, and other knowledge structures, are used to make rapid evaluations and categorizations (snap judgments, Schneider, Hastorf, and Ellsworth, 1979) or to generate hypotheses that guide information acquisition. One problem is that our hypothesis-testing through information acquisition and evaluation may tend to be confirmation biased.

People tend to seek information whose presence would confirm the hypothesis or implicit theory; they rarely think to seek disconfirming information. However, disconfirming information is often the more powerful, whether in formal research (Popper, 1959) or in informal assessment, but this concept is difficult for people to grasp cognitively (Hovland and Weiss, 1951). For example, to discover whether Jack is an extrovert, people ask questions such as "What would you do to liven up a party?" (Snyder & Swann, 1978). These questions give respondents an opportunity to display evidence of extroversion, and thus tend to confirm that quality.

Further, even when presented with mixed information that could confirm or disconfirm an hypothesis, the information can be interpreted as confirmation. Lord, Ross, & Lepper (1979) found that people who start with a hypothesis interpret research opposing their hypothesis as irrelevant or methodologically flawed. Thus, presented with a series of studies offering results favorable to different sides of an issues, supporters on each side can feel that the research supports their side and the evidence against them is of low quality.

Confirmatory biases can often produce self-fulfilling prophesies. In other words, not only do our confirmatory strategies tend to mislead us about the nature of the world, but because we act on our assumptions we may change the nature of the world to conform to our hypotheses (i.e., we become right but for the wrong reasons, Darley & Fazio, 1980; Jones, 1977).

The results of reliance on confirmatory biases over time is a failure to learn from experience and overconfidence in our fallible judgment (Einhorn, 1980). These fallacious or confounded confirmations tend to produce feedback that reinforces our confidence in our opinions, our judgment, and the processes by which we test our understanding. Thus, people fail to learn the falsehood of their beliefs and fail to question the validity of the processes by which they test their beliefs. The function of research methods courses, and the reason they are so difficult to teach, is to provide a fair and unbiased way of testing beliefs. Unfortunately, these biases can never be completely removed, even in expert researchers.

The tendency to look for confirmatory evidence makes our activation of implicit theories particularly crucial. Once a negotiator attributes the causes for a particular behavior (e.g, the Dean concludes that the faculty member is greedy), it becomes very difficult to get the negotiator to reformulate his/her implicit theories. For example, if the Dean concludes that the faculty member really wants to leave, makes a token counteroffer, and the faculty member leaves, then he has been "proven" correct. However, had the Dean made a decent counteroffer, the faculty member might have stayed but this feedback is unavailable in the Dean's constructed world. Thus, Deans who act positively by believing they can get faculty or keep faculty, and who suggest they know better than the faculty member him or herself what that person really needs, may end up getting more than their share. The authors are aware of two such situations where a dean's refusal to take no for an answer led to the return of highly-contested faculty after one-year leaves. In each of these situations, it is easy to envision the dean enacting an alternative knowledge structure to confirm the fact that the faculty member was lost (in fact, this is probably the common knowledge structure once a faculty member leaves and accepts permanent employment elsewhere). Had these pessimistic knowledge structures been activated, the deans would not have pursued the faculty members, and the faculty members would have been lost.

Presumably, experienced negotiators may have learned to seek disconfirming evidence or seek multiple schemas and theories for any situation, to avoid falling prey to the obvious when it is wrong. However, it is also possible that experienced negotiators are so pleased with their schemas that they stop learning new lessons.

Overall, we see our implicit theories as necessary tools for the negotiator. However, they are fallible. To the extent that our discussion of social cognition could lead to new, interesting, and researchable questions about negotiation, then the budding area of negotiator cognition should be encouraged to bloom.

Toward Integration

We have attempted to present some recent empirical findings and emerging themes in the study of negotiator cognition. At this point, it would be ideal to unfold a grand theory that provides an underlying logic for all the pieces presented. Unfortunately, we have no such theory. At this point in the development of our thoughts, our strategy for integrating the themes in this paper is to compare the evidence presented concerning negotiator judgment against the decision stages specified in the beginning of the paper (problem recognition, problem structuring, information gathering, information evaluation, and strategy evaluation). We close this paper with an integrative framework that views negotiators as engaged in this sort of decision process, but influenced at each stage by various cognitive processes specified in this paper. As we discuss each stage, we give examples of cognitive processes that are relevant for describing how a negotiator might deal with that component of the decision process.

Problem Recognition

In the case of the Dean, it appears that problem recognition occurred at the point when information filtered to the Dean about the Professor's offer. The solution to this problem may involve negotiation, in the sense that the Dean tries to ascertain what would keep the Professor and to make

some countermoves, while the Professor is trying to figure out how to get the best deal from this situation. Of course, the Dean could avoid recognizing these events as a "problem" entirely by claiming that the Professor is already being cared for by the system and the "problem" is the Professor's alone, namely, which alternative to select. Most Deans recognize the problem as one requiring negotiation and their acceptance of responsibility. The best Deans recognize problems before they become crises: The Dean could have been aware of the Professor's needs and even of the efforts by other universities to fill vacancies and therefore been prepared for such action or made it difficult to move the Professor (promises of a lighter teaching load next year, and so forth). Preemptive moves can be a successful strategy, as when companies use "shark repellants" to discourage takeover bids. In some cases, these maneuvers may even prevent the faculty member from considering the possibility of moving (refusing the invitation to come look at the other university).

In our example, this stage in the negotiation process is the least cognitively problematic. Most good deans would easily recognizing that a problem exists. However, we can identify some situations where deans have not fully recognized a problem due to overconfidence ("why would she ever leave our school?") or a variety of false implicit theories (the Manipulator script). Once the Manipulator script is activated, the Dean may quickly dismiss the problem, since the offer exists not out of a sincere desire to leave, but for the opportunity to manipulate the Dean. Many opportunities may be lost when the opportunity to negotiate is ignored because of the lack of recognition of the conflict or of the feasibility of negotiation.

Problem Structuring

The first part of any consideration of this situation is to provide a structure, frame or script for the problem. The structure will identify the outcomes, key actors, alternative actions, and major issues, contingencies, and uncertainties. From this viewpoint, identifying alternative actions involves an act of imagination to translate into the current situation the behaviors suggested by past experience (e.g., select a role in a script), or to construct a new course of action built out of the bits and pieces of past knowledge.

The Dean could structure this problem narrowly in terms of the salient features: a faculty member has a good offer. If we really want to keep her then we must come back with a better offer or an offer good enough to keep her. The Dean views the problem as negotiating with the faculty member, perhaps over a fixed-pie pot of resources. However, the problem can be framed in more complex ways that consider other interested parties, other values, and consequences over longer time periods. The problem could be seen as a type of Bidding script in which universities compete for the services of the faculty member. In this situation the faculty member is represented as passively choosing the best offer. More complex scripts recognize the impact on other faculty at the university and the signals they will receive regarding the treatment of faculty in general or this kind of faculty member (represented by eminence, field, research style, or whatever); the impact on other universities and their readiness to "raid" us for faculty; the impact on future salaries and recruiting, and so forth.

How the Dean structures this situation depends on the availability of such frames or scripts -- which ones occur to the Dean? Experienced, sophisticated, or politically savvy Deans may have more scripts and more complex or abstract ones available. More intelligent or cognitively complex Deans may be able to handle the ramifications of scripts involving more interested parties, more conflicting values, and tradeoffs over longer time periods. Socially sensitive Deans or those with better role-taking skills may be better able to perceive the relevance of this situation for other parties. Particularly astute Deans may view the problem not as finding the right script, but as using multiple frames or scripts to gain insights and evaluate more options and contingencies.

Once the broad outline of the problem is set, the Dean must think about the particular details within the picture. Knowledge of the situation, persons, and causality must be brought to bear. What are the possible behaviors of the interested parties? What are their interests and how are those interests affected by various scenarios? What are the likely determinants of whether the Professor is receptive to a counteroffer? Why did the offer come in; what aspects of my world-knowledge are wrong and must be updated? What are the various contingencies among the responses of the interested parties? What can I do to play out this multiperson chess match to get the most favorable result? What options am I constrained from using? It is because of the numerous uncertain and interrelated questions that attempts to import viewpoints, diagnoses, strategies, and other hints from knowledge structures are so important.

Earlier sections of this paper have identified numerous problems with the way negotiators (e.g., the Dean) deal with the many questions involving how the problem gets structured. We have not restated the cognitive issues identified earlier. Rather, we have highlighted the many important issues relevant to the problem structuring stage.

Information Gathering

Once the Dean structures the problem, he must identify and gather additional information about the other party, the environment, and the preferences of interested parties. The "rational" negotiator will have access to all relevant information. However, the actor in the literatures we have examined in this paper will collect information that is biased by a large number of influences, including the way in which the problem is structured, as well as characteristics of information gathering itself. What information is salient to the Dean? What assumptions does the Dean make about the nature of the conflict? Is the negotiation zero-sum, or are joint benefits available? Does the Dean collect information that is available by considering the cognitions of the Professor? Substantial evidence suggests that most negotiators ignore this normatively relevant information. Our implicit theories and confirmation biases are likely to be particularly critical at this stage. These implicit theories guide the information that we seek. Overconfidence in our understanding and our skills may result in too little information being gathered. Ample evidence suggests that a perfect set of information is unlikely to be gathered by most negotiators.

Information gathering itself can be structured as a problem to be solved, which calls forth a nested set of stages similar to those we are

discussing for the larger problem. The Dean may, for example, consider and evaluate alternate mechanisms for obtaining key information about the Professor and the competition, such as frank discussions, tapping the "network" of friends and ex-students for information, designating another faculty member to inquire as subtly as possible about the Professor's thoughts, designing a test of the Professor's loyalty, or whatever. However, these strategies are based on the creativity and breadth of experience of the Dean, conditioned on the implicit theories that operate to suggest both what is happening and what needs to be known. Similarly, the Professor may be engaged in feeling out both the Dean and the depth of interest at the other school.

Information Evaluation

The rational negotiator will fully understand the information obtained. However, actual negotiators do not possess a perfect understanding of the information that they obtain. Just as our implicit theories affect the information that we obtain, these theories also affect the way in which we evaluate the obtained information. Inferences, diagnoses, and predictions are drawn from our assessment of the situation and checked against available information. Virtually all aspects of this process are subjective, with interpretations and pattern-matching conditioned on the salience, subjective structuring, selectivity, and fit of the given information in the context of our knowledge structures. For example, suppose that the Dean calls in the Professor for a frank discussion, and reveals that he has heard of the offer and wishes to know what the faculty member is thinking at present, to which the Professor replies that she is thinking everything over and does not yet know what to

think. If the Dean has activated the "Manipulator" script, he is likely to evaluate such ambiguous information about the Professor in a different manner from how he would have evaluated the same information under the "Bidding War" script.

Strategy Evaluation

Once the information is gathered and evaluated, the rational negotiator identifies the strategy that maximizes his or her expected utility. We believe this process is not so rational, but affected by the imagination and experience of the negotiators, as expressed through the knowledge structures that are activated, the strategies they develop, and the various decision biases we have discussed. Framing outcomes as gains (an expensive person can be replaced by a younger, more energetic, and cheaper faculty member) or as losses influences strategy. The Dean may be overconfident the Professor will stay because of the outstanding quality of the school. Of course, the Professor's evaluation may not be perfectly correlated with the Dean's. If a conflict emerges, each side may escalate their commitment to a position that is no longer in their best interests. We have just begun to enumerate the ways in which our strategies can be expected to be affected by the principles emerging from the literatures we have reviewed.

Conclusion

The introduction offered a five-step model of the decision making process of negotiators. When it was introduced, we suggested that a rational actor would perform each of the steps in an optimal manner. The evidence presented throughout this paper argues that individuals are not well described by a rational actor model. Rather, individuals strive

toward rationality, but are limited due simplifications and biases that they bring to the negotiation context. This paper has outlined many of the specific simplifications and biases that affect negotiators, and has shown how they limit rationality in each of the steps in the negotiation process.

Past research on negotiation has typically been concerned with normative models and the descriptive study of situational and personality determinants of negotiation effectiveness. Yet, researchers realize that negotiation is a decision making process in which multiple parties jointly make decisions to resolve conflicting issues (Pruitt, 1981). This paper seeks to bring the study of negotiator judgment to the forefront of negotiation research. Specifically, research should continue to study the ways in which negotiator behavior systematically deviates from normative models. It is argued that judgmental imperfections reduce the outcomes that negotiators receive from competitive situations, reduce the joint profitability to the two parties in a dispute, and decrease the ability of competing parties to reach mutually beneficial agreements.

Finally, this paper reiterates the importance of descriptive research in the study of negotiators. Recent books on negotiation have emphasized the role of normative frameworks (Fisher and Ury, 1981; Raiffa, 1982). In contrast, we argue that it is beneficial to examine how negotiators actually make decisions, allowing for training that responds to deficiencies in existing thought processes. Lewin (1947) argued that it is necessary to unfreeze an individual before you can expect any changes to take place. Our strategy recommends that negotiation training realize that the normative recommendations for training negotiators may not be

effective in influencing individuals if unfreezing does not take place first. Our cognitive perspective to negotiation has the potential to confront people with their own limitations as the first step to improving their negotiation abilities.

TABLE 1

The Distribution of Price Offers in the Acquiring a Company Problem

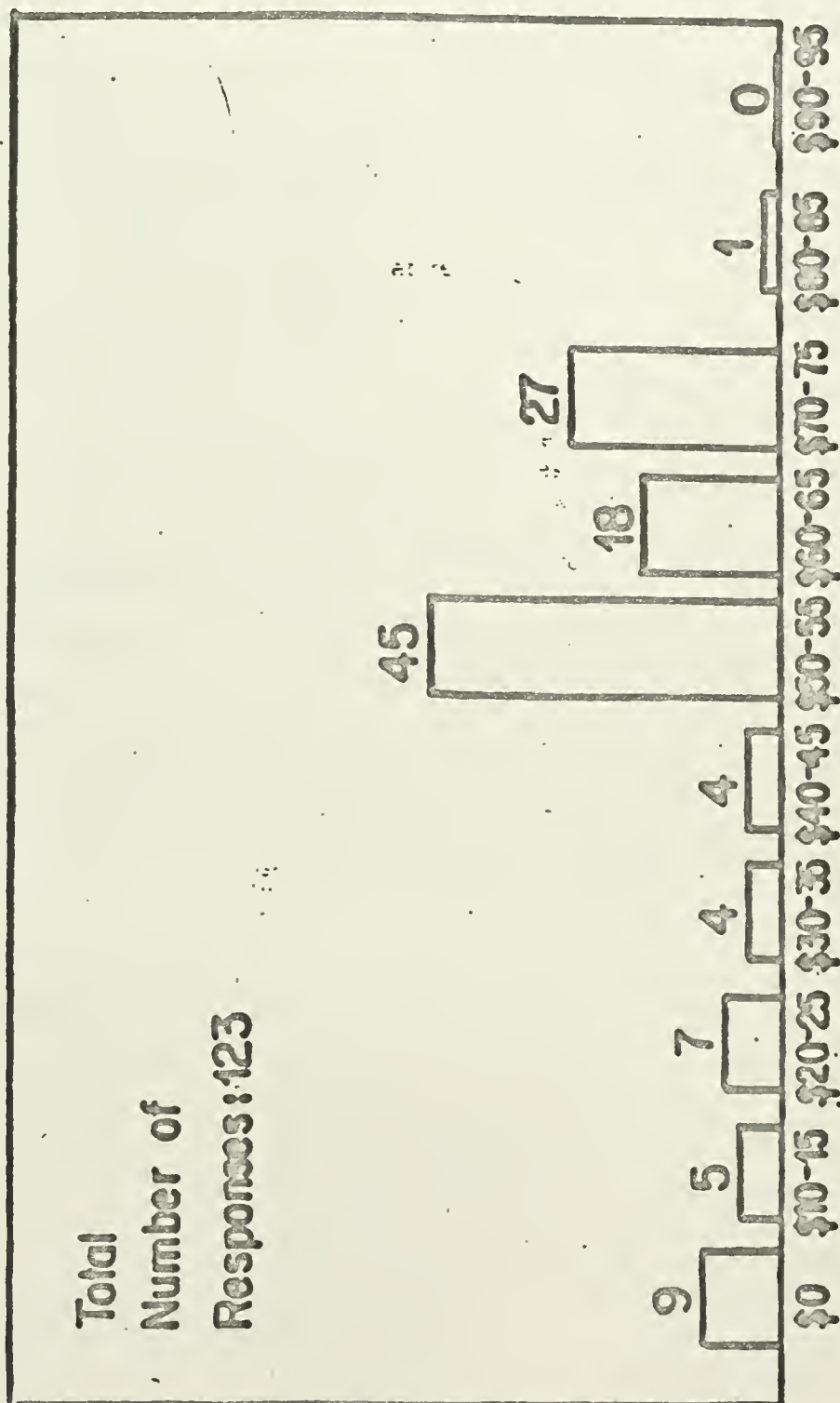


TABLE 2

Percentage of Subjects Making Offers for a Used Car Who Exhibited
Selected Categories of Verbal Protocol Statements

Protocol Category	Offer Group			
	A:\$0	B:\$1-499	C:\$500-750	D:\$751-1500
<u>Protocols distinguishing A vs. B,C,D</u>				
Generalized Hypothetical	88	17	13	0
False Objectives	6	50	40	56
Realize Don't Have to Buy	94	17	14	12
<u>Protocols distinguishing C vs. B,D</u>				
Fixed Value for Car	0	46	24	53
Guess Median Value	31	12	40	12
<u>Protocols distinguishing B vs. D</u>				
Offer Buyer's Value	0	4	28	25
Realize Can Lose Money	88	38	26	6
N	8	12	39	16

Note: Disagreement between coders yielded a code of .5.

Figure 1
Negotiation Models

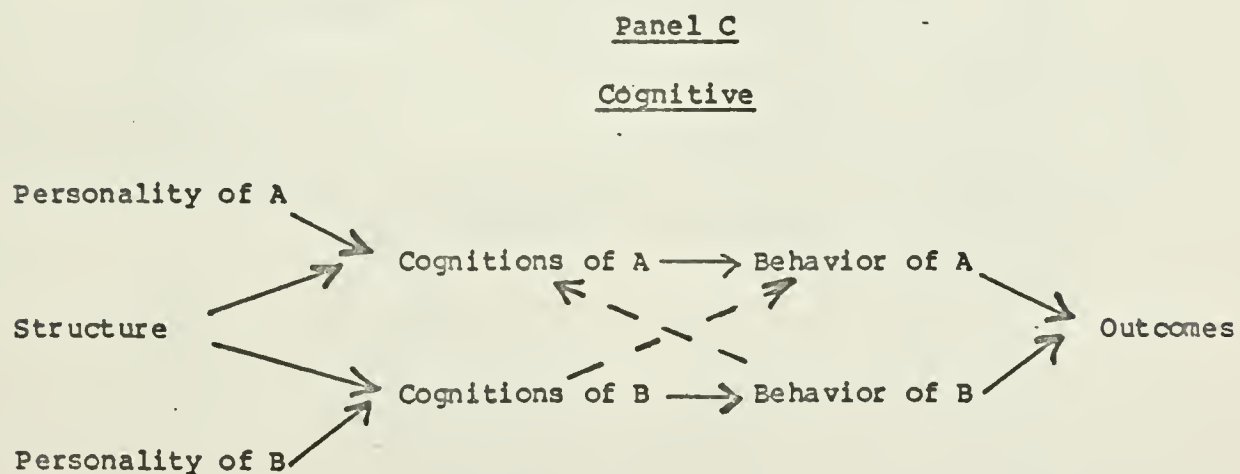
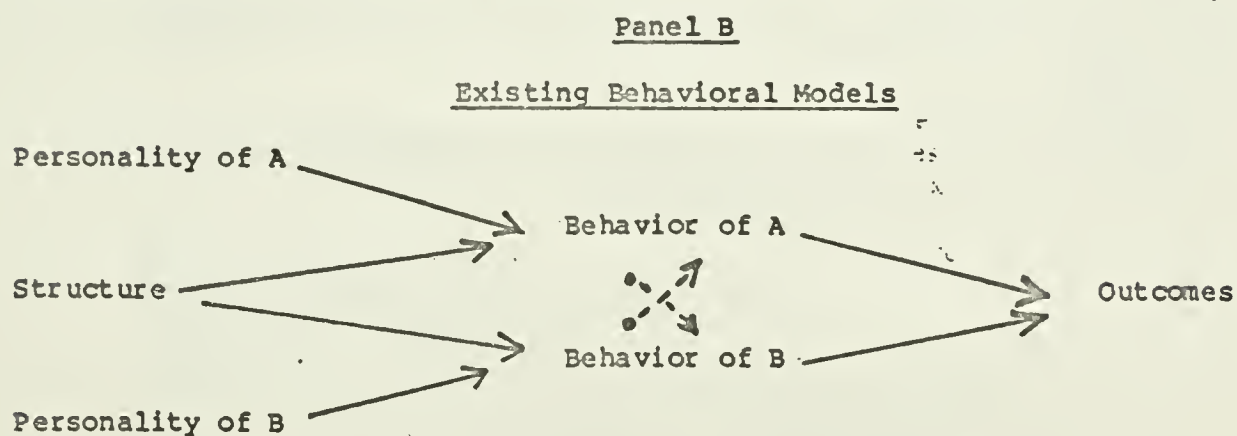
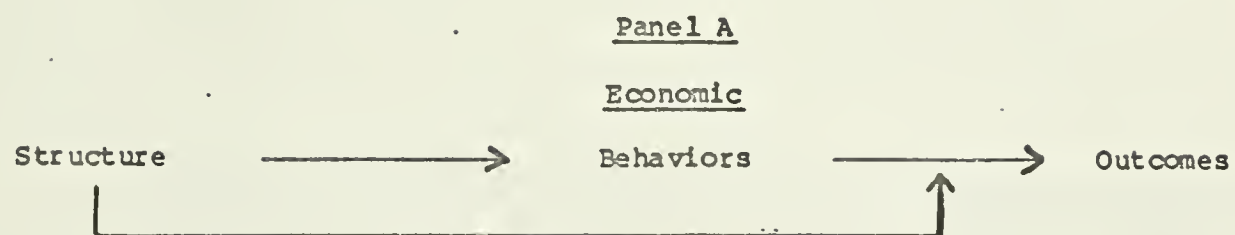
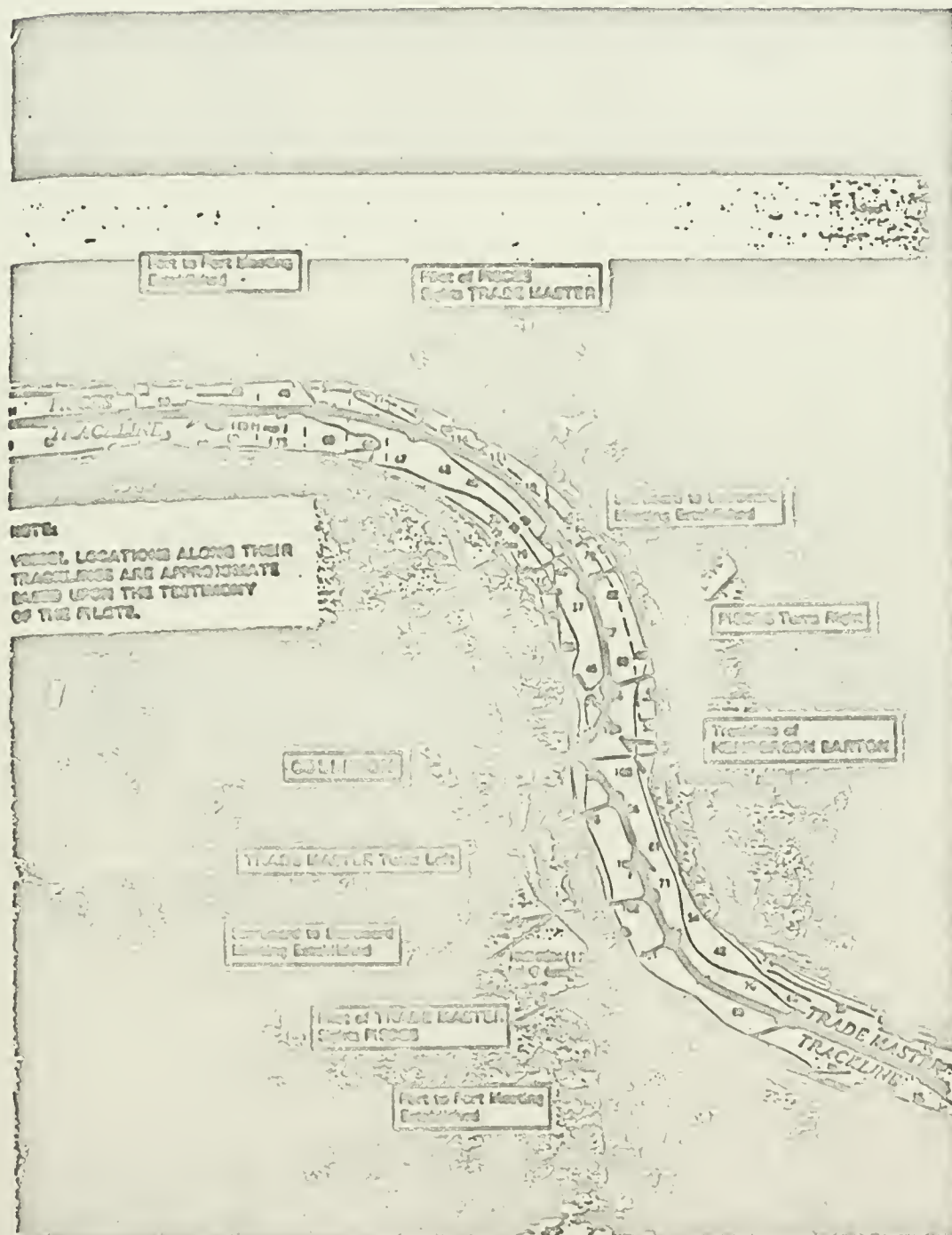


FIGURE 2

Tracklines of Pisces and Trade Master (Perrow, 1984)



SOURCE: NTSB, MAR-82-39, February 1982.

In the following exercise you will represent Company A (the acquirer), which is currently considering acquiring Company T (the target) by means of a tender offer. You plan to tender in cash for 100% of Company T's shares but are unsure how high a price to offer. The main complication is this: the value of Company T depends directly on the outcome of a major oil exploration project it is currently undertaking. Indeed, the very viability of Company T depends on the exploration outcome. If the project fails, the company under current management will be worth nothing-- \$0/share. But if the project succeeds, the value of the company under current management could be as high as \$100/share. All share values between \$0 and \$100 are considered equally likely. By all estimates, the company will be worth considerably more in the hands of Company A than under current management. In fact, whatever the ultimate value under current management, the company will be worth fifty percent more under the management of A than under Company T. If the project fails, the company is worth \$0/share under either management. If the exploration project generates a \$50/share value under current management, the value under Company A is \$75/share. Similarly, a \$100/share value under Company T implies a \$150/share value under Company A, and so on.

The board of directors of Company A has asked you to determine the price they should offer for Company T's shares. This offer must be made now, before the outcome of the drilling project is known. From all indications, Company T would be happy to be acquired by Company A, provided it is at a profitable price. Moreover, Company T wishes to avoid, at all cost, the potential of a takeover bid by any other firm. You expect Company T to delay a decision on your bid until the results of the project are in, then accept or reject your offer before the news of the drilling results reaches the press.

Thus, you (Company A) will not know the results of the exploration project when submitting your price offer, but Company T will know the results when deciding whether or not to accept your offer. In addition, Company T is expected to accept any offer by Company A that is greater than the (per share) value of the company under current management.

As the representative of Company A, you are deliberating over price offers in the range \$0/share (this is tantamount to making no offer at all) to \$150/share. What price offer per share would you tender for Company T's stock?

My Tender Price is: \$_____ per share.

Do not turn the page until you respond above.

Appendix 2
Acquiring A Used Car

In the following exercise, you are asked to make an offer on a '72 Pontiac from a dealer at John's used car lot. The dealer will accept or reject your offer and that will end negotiations. Your objective is to make the offer that will maximize your own expected benefit whether or not you buy the car.

The value of the car is directly proportional to the mileage on it. Because the dealer could have rolled back the odometer, you have no way of knowing the true mileage. However, the dealer does know it.

In the worst case, the car is worthless to the dealer. In the best case it is worth \$1,000 to him. Given the range of possible mileages, all values between \$0 and \$1,000 are equally likely.

Since you can make good use of the car, it is worth more to you than to the dealer. In fact, it is worth 50% more to you. At worst the car is worth \$0 to both you and the dealer. If it is worth \$500 to him it is worth \$750 to you. Similarly, if it is worth \$1,000 to him it is worth \$1,500 to you.

You have to determine a price to offer for the car without knowing its true value. The dealer can accept your offer and you will get the car at the price offered, or he can reject it. If he rejects your offer, no further negotiation will take place and you will not buy the car. You should assume that the dealer will only accept profitable offers.

Thus, you do not know the value of the car when making your offer, whereas the dealer does when deciding whether to accept or reject your offer. In addition, the dealer will accept any offer that is greater or equal to the value of the car to him.

You are deliberating between price offers in the range of \$0 (this is the same as making no offer) to \$1,500. What price offer do you make?

My offer for the car is \$ _____

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